

REMARKS

Claims 1-18 are all the claims pending in the application.

The Examiner has objected to claims 1, 11 and 16 due to purported unclear physical placement of the optical system in relation to other system components. The Examiner's objection appears to be based on physical placement of the optical system between other claimed elements. However, claims 1 and 11 do not recite that the optical system is physically between the reflector and light transmissive body and also between the light-transmissive body and the light detector as the Examiner appears to suggest. Rather, the optical system leads light towards the light-transmissive body as parallel light, which is reflected by the reflector and further converges reflected light towards the light detector. The transmissive properties of the light-transmissive body as claimed allows the light to travel in the manner claimed. In claim 16, no reflector is recited. Therefore, Applicants request withdrawal of the objection to claims 1, 11 and 16.

Claims 1-18 remain pending in the application and remain rejected based on previously stated rejections. In particular, claim 16 remain rejected under 35 U.S.C. § 102 as being anticipated by Schaede. Claims 1-2, 5-7, 9-11, 15 and 17-18 have been rejected under 35 U.S.C. § 103 as being unpatentable over Halter in view of Miranda. Claim 3-4, 12 and 14 have been rejected under 35 U.S.C. § 103 as being unpatentable over Halter in view of Miranda and further in view a Anzai. Claim 8 has been rejected under 35 U.S.C. § 103 as being unpatentable over Halter in view of Miranda and further in view of Ushio.

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The Examiner essentially maintains the prior rejections of record and provides rebuttal to the arguments submitted in the Amendment of June 3, 2004. Applicants traverse the above rejections because the cited references fail to disclose or suggest all of the claim limitations.

The Examiner maintains that Schaede anticipates claim 16. In the rebuttal, the Examiner contends that the web material is necessarily light transmissive, and points to a non-zero level A3 of the light detector to support the rejection. The Examiner's position still relies on assumptions not taught in Schaede, and is not supported for at least the following reasons.

First, the Examiner cites to an example of newspaper and copy paper to support the light-transmissive properties of the web. However, the light transmission properties of a material like paper will depend on the composition and thickness of the paper. The Examiner is speculating as to the light-transmissive properties of the materials disclosed. Since the specification clearly states that the web material is light absorbent, the transmission properties are not necessarily present.

Second, the Examiner's reliance on the non-zero level of signal A3 does not support the rejection. The level of signal A3 can be attributed to ambient light rather than to transmission of light through the web. Because Schaede relies on relative differences and not absolute differences, the non-zero level of A3 is not significant to the operations of the reference. As long as A2 shows a sufficient difference from A3, the objects of Schaede can be achieved.

Third, the claimed invention is also different from Schaede in that the light detecting means detects the difference between the light through the edge and the light bypassing the edge (i.e., the light through the light-transmissive portion of the sheet other than the edge or through the portion other than the sheet). Therefore, claim 16 is not anticipated.

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The Examiner maintains that Halter and Miranda teach features of independent claims 1 and 11. The Examiner concedes that Halter does not teach illuminating light reflected by the reflector as parallel beam light but cites Miranda to make up for these deficiencies. In the rebuttal, the Examiner acknowledges that the beams incident to a reflector are not parallel to each other. However, the Examiner contends that Miranda discloses a parallel-beam light because the incident beam and reflected beam travel the same path. The Examiner contends that the broad interpretation of “parallel-beam” supports the rejection. The Examiner’s rebuttal essentially acknowledges that the incident beam and reflected beam travels the identical path. This identity in path does not result in parallel beam light. Parallel implicates a juxtaposition between two beams. Overlapping lines, or beams, intersect entirely and thus do not comprise two lines. The Examiner’s rejection is not supportable.

In addition, the Examiner contends that the operation of Halter shows that a light beam does bypass an edge of the light-transmissive medium. In this connection, the Examiner relies on Figs. 5a-5e. However, in the position K1, the medium is not disposed between the optical system and reflector as claimed since Fig. 5e does not include the reflector. The combination of the arrangement of Fig. 8 and Fig. 5 (which refers to Figs. 3 and 4) does not disclose each and every element of claims 1 and 11.

Additionally, the Examiner’s reading to impose parallel light characteristics on converging beams is internally inconsistent. Beams that travel on an identical path are completely overlapping and thus are not parallel-beams. In addition, light traveling on an identical path but in opposite directions in Miranda would offer no increased contrast. The passage of the incident light through an attenuating mirror effectively reduces any increase in

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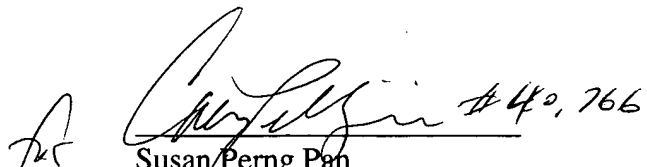
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contrast. The Examiner's proffered rationale for the combination of Halter and Miranda remains unsupported. Claims 1 and 11 are patentable for at least these reasons.

Dependent claims 2, 5-7, 9-10, 13, 15 and 17 are patentable for at least the reasons set forth above for the base independent claims. Anzai and Ushio do not make up for the deficiencies of the rejected base claims. In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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